Half-Day Seminar on "Energy Efficiency for Sustainable Economic Development and Demand-Side Management"

Ir. Lee Kok Chong, P.Eng, MIEM

On 11 August 2005, the IEM Electrical Engineering Technical Division jointly organised a half-day seminar with Suruhanjaya Tenaga on "Energy Efficiency for Sustainable Economic Development and Demand-Side Management". The seminar was conducted by four speakers: Ir. Dr Hassan Ibrahim conducted the first session and followed by En. Muhammad Sharul Azam, Cik Nurhafiza Mohd. Hassan and Ir. G. Lalchand.

Efficient use of energy or "Energy Efficiency" is a critical element for the economic development of any nation. It is even more critical for Malaysia, where the GDP growth is high and elasticity between the growth of electricity demand and GDP has been about 1.5 for several decades. The more "efficient" nations have much lower elasticity, even going below 1.0. Suruhanjaya Tenaga (ST) is charged with promoting energy efficiency as a part of its responsibility for the economic and viable development of the electricity supply industry. ST has benefited in this respect from a DANIDA (Danish International Development Assistance) project for capacity building at the ST on "Energy Efficiency" and "Demand-Side Management".

This seminar presents the concepts, rationale and mechanisms for promoting a culture of efficient energy use for sustained economic development in Malaysia and to maintain its competitiveness in the international market. The presentation also highlighted one of ST's ongoing advertising and promotion campaigns to promote the use of "High Efficiency Motors" (HEM). Successful adoption of EE/DSM is important. With the government's stated goal of reducing or even eliminating energy subsidies, more efficient energy use will help to mitigate the impact of any energy cost increase.

In the first session, Ir. Dr Hassan Ibrahim gave the objectives of the National Energy Policy as follows:-

1) Supply Objective – To ensure provision of adequate, secure and cost-effective energy supplies by developing indigenous energy resources, both non-renewable and renewable, using least-cost options and diversifying supply resources within and outside the economy.
2) Utilisation Objective – To promote the efficient utilisation of energy and the elimination of wasteful and non-productive patterns of energy consumption.
3) Environmental Objective – To minimise the negative impacts of energy production, transportation, conversion, utilisation and consumption on the environment.

Next, the seminar stressed on the fuel diversification strategy and the addition of the fifth fuel. The "Four Fuel Strategy" was introduced in 1981 with the objective of ensuring reliability of supply and to complement the National Depletion Policy, the four fuels being oil, gas, coal and hydropower. In June 1999, the "Fifth Fuel" (Energy Efficiency and Renewable Energy) was introduced with the following objectives:-

- To contribute to the sustainability of the energy supply for the long term;
- To address the environmental concerns by reducing the emission of greenhouse gases;
- To act as a pollution control – waste can be converted into usable forms of energy.

The seminar encourages engineers to improve energy efficiency in electrical distribution systems by utilising the following equipment:

- High Efficiency Motors
- High Efficiency Air Conditioning Systems
- Variable Speed Drives
- High Efficiency Lighting System
- Insulation Enhancement For Air-Cond Ducting

In addition, energy efficiency can also be achieved by implementing Demand-Side Management (DSM) properly. The following are recommendations given by the speakers to manage energy efficiently:-

- Select the most appropriate TNB tariff based on daily operation requirements, e.g. Fixed Tariff or Peak/Off Peak Tariff.
- Avoid paying the power factor penalty by ensuring that the power factor is always maintained at 0.85 and above.
- Avoid consuming electrical loads higher than the declared maximum demand.
- Continuously monitor and control the energy consumption of the organisation.
- Reduce the cost of electricity used and the cost of doing business.

To promote "Energy Efficiency" and the use of "Renewable Energy", the Malaysian Government has formed a National Steering Committee with members from KTAK, MoF, MIDA and ST. The function of this committee is to provide and approve incentives for the organisations that adopt "Energy Efficiency" and "Renewable Energy". The incentives given are as follows:-

- Accelerated Capital Allowance (ACA) on related equipment to be fully written off within a period of one (1) year.
- Exemption on import duty and sales tax for equipment that is not produced locally.
- For locally-produced equipment, only sales tax is exempted.

Initially until December 2002, now extended to December 2005, and possibly extended after the Eighth Malaysian Plan, a more dynamic mechanism is being implemented to make the incentives attractive to the industry.

Finally, the seminar ended with the Question and Answer session. In conclusion, the worldwide focus of the energy sector is on sustainability and efficiency. There is a need for the Malaysian commercial and industrial sectors to undertake energy efficiency measures to gain competitive advantage. Last but not least, adopting "Energy Efficiency" means we will live in a better world for our future generations. ■